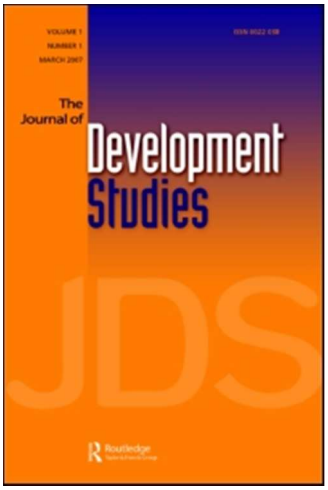
Migration as a Tool in Development Policy: Caution Ahead?



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Summary

The World Bank and UNDP have proposed that migration and mobility facilitate economic development. Yet the epidemiological and public health literature has often associated migration and population mobility with the extension and intensification of infectious diseases, most recently epitomised by the AIDS pandemic. Within the context of the well documented negative developmental impact of AIDS, this suggests a potential clash in perspectives on the role of migration. However, if insights from public health can be incorporated into broader development perspectives, it may be possible to realise the developmental benefits of migration while mitigating or avoiding any associated health concerns.

Introduction

In 2009, there was clear agreement by the world's two leading multilateral development agencies – the United Nations Development Program (UNDP) and the World Bank - that migration is fundamentally good for development (UNDP 2009; World Bank 2009). Whilst it has been suggested that this focus may be a passing phase (Skeldon 2008), this current consensus on the beneficial role of migration has been accompanied by a set of policies designed to encourage the 'right kind of migration'(World Bank 2009) and to 'mainstream migration into national development strategies' (UNDP 2009). However, this optimism about the benefits of migration appears at odd with the concerns of the public health and epidemiological literature, which in recent years has strongly associated migration with both the extension and intensification of the HIV/AIDS pandemic (Brockerhoff and Biddlecom 1999; Brummer 2002). While the World Development Report acknowledges that it does not address some of the potentially damaging results of population

movement, such as slum formation, this approach seems too casual in light of the well- documented negative impacts of national AIDS epidemics, affecting not only life expectancy and quality of life, but also educational attainment, household welfare, and to some extent, economic growth. Thus, there seems to be a potential inconsistency in perspectives on the developmental impacts of migration between general development agencies and the health and development community. This is particularly evident for those sub-Saharan African countries with high HIV prevalence rates, but can be seen in other areas, such as South East Asia or China, where absolute numbers of HIV infections are sizeable, and there are concerns over the potential for further increases in infections (Hsu 2001; Tucker et al. 2005).

The association of HIV spread with migration in many ways derives from the nature of HIV as an infectious agent, and the epidemiological realities that these are spread through overlapping networks of contacts (Poundstone et al. 2004). Other communicable diseases, such as TB, raise similar concerns, such as its association with overcrowding and poor living conditions often seen in newly urbanising areas. Yet the behavioural concerns surrounding HIV encompass both a far broader range of migratory practices, and a wider demographic (Gillespie et al. 2007). However, as will be explored below, the evidence on the relationship between migration and HIV presented in the epidemiological literature is often inconclusive, with no universal correlation between mobility and HIV or risky sexual behaviours, suggesting that any blame or stigmatisation of migrants as bridges of disease is often unjustified, and may oversimplify the relationship between migration and HIV risk. Two well-known case studies have often been used to establish or justify the link between migration and HIV spread. The first is that of mineworkers in South Africa (Crush et al. 2005) ; the second, that of truck drivers in East and Southern Africa (Douglas 2000). While the depth of understanding of these case studies highlight ways that some mobile populations may experience risk, it is likely that such risk is as much to do with occupational and contextual factors than migration or mobility per se. Indeed, while these population groups are often be seen as undertaking high risk practices, rarely

explored is the risk that derives not from new or different behaviours, but simply because they move from areas of lower background HIV prevalence to areas of higher prevalence.

Understanding how forms of migration may increase the risk of HIV exposure, therefore, requires better understanding of the complex ways migration plays out in different contexts, and specifically how migration relates to patterns of risky sexual behaviour such as the formation of multiple concurrent partnerships and exposure to broader or riskier sexual networks (Epstein 2007). The HIV/AIDS prevention community is increasingly recognising the important ways that social factors affect the spread of the disease, and the need to go beyond standard biomedical and behavioural strategies to target these social drivers (of which migration is often included) in prevention strategies(Auerbach et al. 2011).

This paper argues that there is an absence of studies that frame the migration-HIV link as a dynamic socio-economic process, which makes it difficult to assess the extent to which some of the concerns of the epidemiological literature will be realised. It also makes it subsequently difficult to integrate HIV prevention strategies into broader development plans that encourage or incentivise migration for economic reasons. The paper reviews the literature on migration and HIV to explore the evidence which suggests that there may be long-run health impacts of migration which can conflict with development goals. It then suggests ways in which HIV prevention and development objectives can be conceptualised together in light of an increasing focus in the public health literature on structural drivers/interventions, which emphasise the importance of both individual agency and the underlying socio-economic context. Using this approach, we show how, if properly understood, it is possible to transcend approaches which attempt to merely mitigate the potential negative developmental impacts of HIV, to harnessing synergies in which HIV outcomes and developmental outcomes can be improved simultaneously. Our primary focus will be on sub-Saharan Africa, home to the majority of people living with HIV/AIDS (UNAIDS 2009), the lowest national income levels (World Bank 2009) and the lowest Human Development Index (HDI) scores (UNDP 2009).

Migration and HIV

There are a number of long-standing concerns of the public health and epidemiological literature which require consideration when assessing the impacts of migration and mobility, particularly in parts of sub-Saharan Africa where HIV has in recent years threatened a range of long term development goals.

In the epidemiological literature, migration and population mobility more generally,[i] have long been identified as key drivers of the spread of the HIV virus across sub-Saharan Africa (Jochelson et al. 1991). This focus on migration and its role in early transmission seems clear, when thinking historically about the expansion of HIV across the African continent. Iliffe (2006) and others suggest that HIV may have originated in western equatorial Africa, specifically in the broad area of Cameroon and the Democratic Republic of Congo, and then spread to the east, west and south. As with any infectious agent, this spread would have occurred through movement of individuals, often to newly expanding urban areas and to rural sites of labour migration. Such migration patterns may have been permanent or circulatory, internal or international. Unsurprisingly, communities among main roads, lakeshores, or at important staging posts, were among the first affected. Thus, transmission across the continent was seen in the literature as being shaped by patterns of urbanisation, commerce and trade and uneven economic development (encouraging labour migration). Importantly, migration was seen as linking areas where the virus was already present to those where it was not (Caldwell et al. 1997; Brockerhoff and Biddlecom 1999; Tanser et al. 2000; Brummer 2002; Msimang 2003; Iliffe 2006).

This formulation of the relationship between population mobility and the spread of HIV, isolated as it is from an understanding of individual behaviour, is particularly pertinent when considering the early stages of the epidemic. However, large differences in prevalence rates between localities within countries persist. For example, in Tanzania a 2008 national survey found regional prevalence rates varying from 1.6% to 15.7%, with an overall national estimate of 5.7% (Tanzania Commission

for AIDS 2008), suggesting that at a structural level, patterns of movement may continue to play important roles in the evolution of national epidemics.

At the same time, there is a behavioural strand within the epidemiological literature that views migration as enhancing HIV risk not just through linking population groups, but through altering the risk behaviours of migrants themselves (Pison et al. 1993; Lurie et al. 2003; Kishamawe et al. 2006; Khan et al. 2008). These works hypothesise that whilst away, migrants may engage in riskier behaviours, such as sex with an increased number of partners or contact with commercial sex workers, and, on return home, act as a bridge between higher prevalence 'destinations' with lower prevalence 'home' areas. Of course, moving per se does not directly increase risk (Samuels and Wagle 2011). Instead, the supposed increased levels of risky sexual behaviour engaged in by mobile individuals are typically explained by a range of different possible factors. Firstly, some have theorised that young male migrants in particular engage in risky sexual practices as they are freed from traditional social or community controls on sexual behaviour (Brockerhoff and Biddlecom 1999; Lagarde et al. 2003; Kishamawe et al. 2006; Mmbaga et al. 2008; Vissers et al. 2008). Secondly, separation from spouses or partners for long periods of time may also be associated with extra-marital sex due to feelings of loneliness and isolation (Brummer 2002), and greater availability of and access to sex workers in destination areas (White 2003). Patronage of sex workers by migrants has also been found to result from cultural and language difficulties which prevent formation of social and sexual relationships within the local population (Lagarde et al. 2003; Kishamawe et al. 2006). More recently, spouses and partners of mobile individuals have been identified as high risk groups for similar reasons (e.g. separation from partners for long periods of time), along with the possibility that they may have to engage in transactional sexual interactions if money is not sent home (Lurie et al. 2003; Zuma et al. 2005).

This narrative of migration and population mobility leading to increased risk behaviour has been applied to a wide range of case studies of migrants, although review of the literature appears to

show that it has developed from two particularly well documented case studies of mineworkers in South Africa and truck drivers in Southern and East Africa, which will be discussed in more detail below. As such it may prove overly simplistic in capturing the diversity of mobile populations, but the depth of work on these case studies does provide important insights about how some groups have indeed faced HIV risks correlated with their mobility.

Mineworkers and Truck Drivers

South African mining companies have long been dependent on migrant labour, both internally from South Africa and from adjoining countries[ii]. Typically 40% to 50% of the mine workforce is made up of migrants from other southern African countries (Lurie et al 2003, Crush et al 2006). In general, miners are not encouraged to bring their families, a hangover from the days when black South Africans were not allowed to settle in white areas, and foreign workers were not granted the rights of permanent residence (Crush et al 2006). As a result, in contemporary settings, the overwhelmingly male workforce is consigned to single-sex hostels that house up to 18 mineworkers per room (Campbell 2003, Crush et al 2006). The living conditions are cramped and lack privacy. The dangerous and demanding work appear to foster fatalistic attitudes among workers (Campbell 2003), and the miners are subjected to long periods of separation from spouses and families (Campbell, Lurie et al, Crush et al 2006), with little to do in terms of recreation except drink and have sex, affordable due to the relatively high salaries of mine workers compared to surrounding populations (Campbell 2003). Sex is readily available from sex workers who are often migrants themselves, living and working in settlements that have sprung up around the mines (Campbell 2003, Crush et al 2006). All these factors combine to create a highly risky behavioural environment, and the conditions for the intensification of the epidemic.

The potential higher risks qualitatively described in these studies for South African mineworkers are supported by epidemiological studies as well. In a cross sectional survey that compared behavioural and prevalence data from male migrant workers (comprised of miners and migrant industrial

workers), with a sample of male residents from the same home areas, Lurie et al (Lurie et al. 2003) found that migrant men were nearly 2.5 times more likely to be HIV positive than non-migrant men. Both 'migration status' and 'having lived in 4 or more places' were found to be independent risk factors, suggesting that mobility and disruption were both important explanatory factors. In a complementary cross-sectional study, Zuma et al (Zuma et al. 2003) investigated the risk factors for HIV infection amongst women, recruiting women from a township in one of the mining regions in South Africa. In this case, the survey found migrant women were over 1.5 times more likely to be infected with HIV. In a follow-up paper using data from a cohort study, Zuma et al (Zuma et al. 2005) found that migrant men were also 1.5 times more likely to have contracted a STI. Alongside this, there is evidence of more risky sexual behaviour amongst these groups of migrants, including a higher number of casual partners for migrant men (Lurie et al. 2003) and for migrant women, who were likely to have had more sexual partners, and less likely to use a condom (Zuma et al. 2003).

Evidence also shows high levels of HIV prevalence and associated risk behaviours in truck drivers in a number of independent surveys. In 1989, Carswell et al (Carswell et al. 1989) conducted a survey of 68 truck drivers passing through a transport deport in Kampala, Uganda, finding that 35% were HIV positive, a high number considering the epidemic was considered in its early stages in the 1980s. Similarly, Podhisita et al (Podhisita et al. 1996) reported higher prevalence rates in Thailand for long-distance truck drivers compared to the general population, and in India Pandey et al (Pandey et al. 2008), found a prevalence rate among truckers which was more than 12 times higher than the national average for the general male population. Rakwar et al (1999), in a prospective cohort study in Kenya, found a prevalence rate of 17.8% in the cohort of 1500 truck drivers, and an annual incidence of 3.1% (Rakwar et al. 1999). Concerns have also been raised regarding risk behavours, such as in Bolivia where non-spousal sex is prevalent among truck drivers (Sorensen et al. 2007), in Nigeria where only 9% of long distance truck drivers consistently used condoms (Sunmola 2005) and even in the US, where truck drivers have been viewed as vulnerable to HIV infection due to lack of condom use combined with multiple sex partners (Stratford et al. 2000)

Explanations for these high prevalence rates seen in truck drivers include long periods of separation from partners/spouses, the dangerous and stressful nature of their work, boredom and lack of alternative recreational options, availability of sex workers in roadside settlements and truck stops, their desirability as sex partners due to greater relative wealth, and long periods spent waiting at borders for customs clearance (Whiteside 1998; Douglas 2000; Kamwanga et al. 2006; Stillwaggon 2006). These echo many of the themes identified in studies of mineworkers in South Africa, already suggesting that high levels of HIV prevalence and reported risk behaviours may have as much to do with similar occupational aspects and working conditions than the mobility alone of both groups.

Other studies linking migration to HIV prevalence

These well researched populations of mineworkers and truck drivers, however, may sustain a wider belief that migrants and mobile populations *generally* adopt higher risk behaviours. Further studies have been carried out for labourers who migrate to work on rural estates or plantations (Pison et al. 1993; Ondimu 2010), female migrants (Zuma et al. 2003), and rural residents who travel to urban centres for economic reasons for varying lengths of time. This is a smaller body of literature, however, and often the assumption of higher risk has been applied with limited empirical validation, or with minimal description of the nature of the migration in question – such as the origin or destination of migrants, the reason for migration, or the duration of migration (Kishamawe et al. 2006; Mmbaga et al. 2008; Vissers et al. 2008).

The evidence from these other cases is less conclusive, and allows few, if any, consistent hypotheses about mobility and HIV transmission to be made (Deane et al. 2010). This is in part due to the abstract definitions of mobility used in many studies, and the difficulty of mapping internal migratory flows. The standard statistical methodology within epidemiology utilises survey data, which typically capture demographic characteristics, details of sexual behaviours, and in some cases, HIV status through blood testing. The surveys often further attempt to define a survey question related to an individual's current or past migration – creating a variable that allows the sample to be

split into two or more 'mobility' categories. The sample is then tested for statistical differences in HIV prevalence and risk behaviours between the defined 'mobile' and 'non-mobile' groups.

A review of the evidence gathered from case studies that use this methodology demonstrates that there is no universal correlation between mobility on its own and HIV risk behaviours or prevalence, for either men or women, nor in relation to the duration spent away from the household. Instead, studies focusing on different populations and settings typically report contrasting results. Lydie et al's ((Lydie et al. 2004)) study of an urban population in Cameroon categorised individuals into three groups based on mobility as a function of time away ('no absence', 'being away for less than or equal to 31 days' and 'being away for more than 31 days'). While they found that there was a strong statistical association between 'mobility' and HIV prevalence for men, with prevalence increasing with time spent away, for women there was no significant difference between the three groups, with women who spent no time away having nominally higher prevalence than the other groups. Interestingly, the pattern was clearer in terms of self-reported risk behaviours, with mobility associated with a greater likelihood of reporting a non-spousal partner (for married men) or more than one sexual partner (for unmarried men and unmarried women). Conversely, Khan et al's (2008) study of mobility and sexual behaviour in Burkina Faso found that HIV-related risk behaviours were associated with mobility for women, but not for men (with mobility categorised as individuals that either lived outside the study town and travelling into the study town, or had moved to the study town within the last 12 months); while Lagarde et al's (2003) study in Senegal and Guinea Bissau found a significant statistical association for both men and women between short-term mobility and risk behaviours, but not long-term mobility (with short-term mobility defined as having been away from the village for at least one day and one night in the last 4 weeks, and long-term mobility defined as having been away from the village for at least one month in the last 12 months).

These contrasting, or even seemingly-contradictory, results make it difficult to develop a simple conclusion on whether mobility is linked to HIV risk in different settings. Moreover, contrasting

results can also be found between studies that focus on the same population group (Deane et al. 2010). Two papers, for instance, have been published based on the same epidemiological cohort in Tanzania, using different definitions of mobility. The studies found mixed or conflicting associations between mobility, HIV infection and risk behaviours. Kishamawe et al (2006) divided their sample into three mobility categories, 'resident', 'short term mobile' and 'long-term mobile', based on whether an individual had slept outside the household at least once the night before a demographic round (short-term mobile) or had lived elsewhere at least once the night before a demographic round (long-term mobile). The authors found that for men, there was no statistically significant difference between mobile groups in terms of HIV prevalence or incidence, and little evidence to show strong differences in risk behaviours. However, long-term mobile women had statistically higher levels of riskier behaviour and HIV prevalence rates. Further analysis of these data found that resident men with long-term mobile wives had the highest levels of HIV prevalence, and also engaged in significantly higher levels of risky sexual behaviour.

In comparison, Vissers et al (2008) working with data collected from a different survey of the same population, found that 'co-resident mobile' men (cohabitating but slept outside the household 10 or more times in the previous year) had significantly higher levels of risky behaviour than co-resident non-mobile men, a result that seems to contradict Kishamawe et al (2006), who found the highest levels of risky behaviour among resident men who had mobile spouses. For women, Vissers et al report no significant differences between the groups for either risky behaviour or prevalence, though the nominal HIV prevalence rate was higher for non-mobile coresident women than it was for mobile coresident women, conflicting with the highly significant results for long term mobile women reported by Kishamawe et al.

Lastly, some studies find no link between migration and risk behaviours or HIV infection at all. Coast (2006), for instance, reported that Maasai migrants to cities in Tanzania were 'not having sex in town', challenging the standard representation of urban to rural transmission (Coast 2006).

Mundandi et (2006) al also found no significant differences in HIV incidence or risk behaviours between out-migrants and residents in a study conducted in Manicaland, Zimbabwe (Mundandi et al. 2006), and Halli et al (2007) (Halli et al. 2007), in an ethnographic study in South India, found migration was not a key factor affecting the sexual behaviour of married men (Halli, Blanchard et al. 2007. Finally, Coffee et al (2005), also using data from rural Zimbabwe, report a mixed relationship between mobility and HIV infection, finding that rural to rural migration was more important than rural to urban migration in explaining HIV prevalence rates (Coffee et al. 2005).

Conclusions on the empirical evidence linking migration and HIV

This review of epidemiological and behavioural studies does not find a consistent relationship between mobility and HIV. Several reasons can be advanced for this lack of consistency. Aside from the occupationally-focused studies of mineworkers and truck drivers, broader epidemiological studies tend to generalise across all forms of mobility. However, risk behaviours and HIV prevalence will be in part shaped by the form of mobility undertaken, which ranges from urbanisation, rural to rural migration and international migration. It is also affected by the reasons for moving, which may include economic motivations, political disruption or social motivations encompassing flows relating to kinship ties, marriage and/or divorce, visiting relatives or partners in the case of polygamous marriage, or for ceremonies such as weddings or funerals. Alongside this, anticipated changes in HIV risk behaviours will also depend on the time spent away, the frequency of visits home, the degree of integration with locals in destination areas and the general experience of the migration process. It is also critical to know the characteristics of both location-specific prevalence rates, and location specific patterns or norms of sexual networking. Most epidemiological studies are unable to report on the differences in prevalence rate between the areas of migration and migrants' home areas, in part because few questions ask about where migrants go. This is a potentially critical omission, as the HIV transmission risk will be a direct function of the differences in prevalence rate between the two areas in addition to the potential changes in risk behaviour of migrants while away.

The abstract and often varying definitions used in epidemiological studies, which usually capture whether a person has moved, and at best, a classification of duration of time spent away, conflate the many distinct types of mobility, making results contradictory and difficult to interpret. While the more focused case studies of mineworkers and truck drivers may encourage strong conclusions to be drawn about the relationship between HIV prevalence and mobility in these groups, it is clear that the wider evidence suggests a large degree of complexity and heterogeneity in terms of the HIV risks that can come with migration.

Lastly, there is little engagement with the wider migration literature, which provides a range of insights that could be incorporated into epidemiological studies, including the economic, political and social motivations for migration, and other structural factors that influence patterns of movement (Wood 1982; Fawcett 1989; Massey et al. 1993). A greater incorporation of theoretical insights into future epidemiological inquiry could help us understand the link between HIV and migration with greater clarity and more contextual specificity, further helping to guide HIV prevention efforts targeted at different migrant populations.

Integrating migration and HIV/AIDS in the development agenda

It is likely that the relationship between migration and HIV risk will be determined by many different factors, such as the local socio-economic context, localised epidemiology, and the form of migration under consideration, making it difficult to assess the potential impact of migration on developmental objectives in Africa and other parts of the world. That said, as HIV is an infectious agent, it is obvious that increasing population mobility and mixing of populations has inherent risks for disease spread, where it links areas of different background prevalence or changes behaviour. This article has presented a range of empirical studies of the potential for migration to intensify HIV transmission. We found that in many studies the impact of migration on transmission could not be empirically established. It is in the oft-cited case studies of truck drivers and mineworkers that the link appears clearest and we have argued this reflects both specific occupational and mobility characteristics.

However, it would be short-sighted and, indeed, reckless to ignore the potential risk of HIV spread when promoting or pursuing a migration-led development strategy.

The impact of HIV/AIDS on macroeconomic growth is unclear, with calculations from the vast majority of macroeconomic models suggesting a relatively small negative influence (Johnston 2008), and views including those that suggest that the epidemic may have a positive influence on growth (Young 2005) , In contrast, the literature on the microeconomic impact of HIV/AIDS is almost unanimous in its conclusion that HIV/AIDS is detrimental to development, whether this is in terms of reduced rates of economic growth, lower life expectancy, decreased labour productivity, lower school enrolment rates or declining household production (MacFarlan and Sgherri 2001; Yamano and Jayne 2004; Beegle et al. 2005). Health is also often conceptualized as a key component of human development, and as such HIV infection could by definition be seen to have an impact on development through hampering individual functioning (UNDP 1990). This suggests that the case for using *any* development tool that has the potential to increase HIV transmission should be carefully considered. Yet, from a capabilities perspective, a clear contradiction is raised when some human capacities (such as mobility) are limited with an intention of protecting others (such as health). Providing these as dichotomous trade offs, however, may not be the most useful strategy for development planning.

Only a few studies have attempted to address these two issues from a development perspective. One UNDP project in South East Asia (Hsu 2001), for instance, attempted to explicitly address HIV risk associated with the expansion of transportation infrastructure. The study conceptualised population mobility, both facilitated and stimulated by economic development, as a dynamic process, and recognised that the expansion of transport infrastructure to support industrial enterprise could enhance the transmission of HIV. Policy recommendations included speeding up border times, improving employment opportunities for the locals of towns on transport routes, safer

accommodation for drivers, and payment schemes which reduce disposable income while away (Hsu 2001). Given this recognition that structural economic development initiatives and HIV spread cannot be studied in isolation, it is surprising that HIV/AIDS was not included in the 2009 UNDP report.

If concerns over the potential risks are taken seriously, it would seem necessary to incorporate a consideration of how social and economic dynamics may facilitate transmission. This includes systematically learning lessons about the types of migration that are linked to HIV risk from emerging evidence. It further requires gathering more detailed evidence about the patterns of social change that occur alongside migration-led development processes, so as to recognise potential risks early and to mediate against them. There are some signs that this is beginning to happen (the UNDP for instance has begun using language of 'mainstreaming' HIV and other social impacts when looking at infrastructure projects (UNDP)), with the UNDP East Asia project an important example of how this can be done. However, at present, evidence for the successful integration of these broader concerns into policy is sparse, particularly in sub-Saharan Africa where there may be political obstacles to incorporating more structural approaches to HIV into prevention planning. For example, transport sector policies such as in Zambia (Ministry of Communications and Transport 2010) remain largely rooted in an approach that focuses on the reduction of HIV-risk solely through behavioural change, with at risk populations identified and then targeted with individually oriented information about HIV, or distribution of condoms. Similarly in Tanzania, Hunsmann found a range of reasons that evidence on structural prevention was not incorporated into policy plans, including planner bias for short term solutions and cost-effective analysis, policy fragmentation due to vertical programming, and a perception of structural planning being overly complex to decision makers (Hunsmann 2012). These barriers remain despite alternative policy proposals that aim to address structural factors, social drivers, or other underlying processes and practices (Hsu 2001; Stillwaggon 2006; Auerbach et al. 2011)

Stillwaggon (Stillwaggon 2006) discusses the implications of the contracting out of a programme to reduce HIV transmission at border crossings to institutions that have a history of implementing standard behaviour change programmes and condom distribution, so that alternative policy recommendations such as reducing border processing crossing times were ignored. The recommendations in the UNDP study by Hsu (2001) above were similarly structural, with suggestions for reducing both the demand for transactional sex by transport workers (by reducing transport delays, changing payment systems and improving accommodation) and the supply of local sex workers (by improving local employment opportunities). The mineworker example again proves illustrative here – while the living conditions of mineworkers and the general context surrounding the mines have been seen to influence risky practices, the responses to high HIV prevalence rates by mine owners and public health programmes have rarely addressed those underlying conditions, instead typically providing information, condoms, or access to HIV testing (Campbell 2009). The detailed case studies of mineworkers and truck drivers suggest that there may be unexplored policy approaches that facilitate migration in a way that can be mutually beneficial for both health (in this case HIV) and developmental outcomes, illustrating ways in which mitigating the potential for increased HIV transmission can in fact be a positive force.

Other insights from the epidemiological and public health literature point to ways in which, when understood as part of the same process, positive developmental and HIV related outcomes might be integrated. For example, it is well established that HIV prevalence is usually higher in urban areas compared to rural areas (Beegle and de Walque 2009; Greif and Dodoo 2011) (UN-HABITAT 2006; Tanzania Commission for AIDS 2008), but evidence also exists to show that within sub-Saharan African cities, prevalence is higher in informal settlements and slums(UN-HABITAT 2006). Poor living conditions, overcrowding, the existence of other infectious diseases, instability over residency status, lack of access to basic healthcare services, high levels of crime including rape or domestic violence, and the breakdown of social support structures create risky sexual environments (UN-HABITAT 2006). This suggests that a contributing factor to the vulnerability of migrants is the nature

of the environments that they are moving into, rather than 'being a migrant'. Additionally, other situations in which labour concentrates around industrial complexes, such as mines(Crush et al. 2005; Hargrove 2008; Campbell 2009), or agricultural plantations (Ondimu 2010) presents further examples of the importance of context in understanding transmission dynamics. Just as the health sciences would be short-sighted to ignore the structural drivers of risk and vulnerability, the development sciences would be unwise to ignore the established ways in which elements of social change have been linked to health risks, even if they are part of larger, longer-term, economic and social development goals.

However, the integration of HIV prevention into development concerns can struggle due to a clash of paradigms. Historically, HIV prevention responses have mainly focused on providing individuals with information or access to condoms, in the hope this will reduce risk behavior (Gupta et al. 2008; Kippax 2008; Hankins and de Zalduondo 2010). Many HIV prevention interventions have been developed within the field of medicine, epidemiology, and public health, whose epistemological roots lie in the identification of direct causal agents, and targeting individuals with information to change behaviour. This stands in contrast to the social sciences which are concerned with macro-level structural change. It is only recently that the HIV community has begun to call for increasing consideration of social and structural approaches to prevention (Gupta et al. 2008; Rotheram-Borus et al. 2009; Auerbach et al. 2011), and such a focus can help those tasked with HIV prevention see the links between HIV risk and broader social changes. There is clearly a need to move beyond the seeming deadlock faced when migration is said to provide capacity for social and economic development, while infectious diseases is seen to spread through population movements. Recent literature on structural approaches to HIV have begun to recognize the broader social implications of disease prevention strategies that impinge on human capabilities (such as isolation) to instead call for structural prevention strategies which are informed by a goal to build human capabilities instead. As such, pursuing strategies for HIV prevention that work to build individual human agency to resist

HIV, as well as to support community factors that can improve HIV resilience, may allow progress in harmonizing the health and development agendas (Parkhurst 2012) .

Conclusion

Mobility and migration occur as part of the development process. The form, extent and impact of this mobility will vary considerably. Migration has recently been framed by the World Bank and UNDP as a potential development tool. The rationale differs between the organisations, with the World Bank arguing that agglomeration of labour through migration contributes to the creation of an endogenous growth cycle, and UNDP seeing mobility and its link to greater freedom as an indicator of development in itself. Neither of these organisations, however, addresses the concerns of the epidemiological community on the role of mobility in the spread of HIV in sub-Saharan Africa.

Our review of the epidemiological literature indicates that the evidence is clearly mixed with regard to the impact of migration on prevalence rates across regions and on risky behavior. It is clear that different types of migration are likely to be associated with different risk behaviours, and may or may not link areas of different prevalence. Our review of specific case studies has also shown that the epidemiological literature has a tendency to under-theorise the nature of migration, over-simplifying differences between migrants, their destinations, the duration of their absence and the purpose of their migration. Yet these nuances are crucial in understanding whether a given pattern of migration will have associated risks for increased HIV incidence, and therefore in understanding what sorts of HIV mitigation strategies will be required. The impact of migration on both economic and health outcomes will be divergent in different settings, dependent on local economic conditions and processes, as well as individual capabilities, skills, constraints and resources. Further research is needed to link outcomes to specific circumstances and settings before migration is extended as a blanket development tool. The potentially damaging impact that increased HIV infection can have on both individual/household welfare and economic growth should serve as a warning to policy

advisors to exercise caution, and be aware of risks that may need to be addressed when social change processes occur.

Whilst pro-migration policies are currently being promoted by the global development community, in many sub-Saharan settings there is a current resistance to the opening of borders and pro-immigration policies, even between countries that have a history of cross border flows of people, though views towards intra-regional migration have fluctuated over time (Adepoju 2005; Musonda 2006) . In the light of local realities, in which migrants face many legal restrictions, may be viewed as scapegoats for 'social ills' or as competitors for jobs, and with 'sentiment against non-nationals … on the increase", (Adepoju 2005; Musonda 2006; Bakewell 2009), further stigmatization as carriers of HIV is dangerous. Our review of the epidemiological evidence demonstrates that it is also unwarranted, as there is no universal correlation between migration and HIV. This finding presents a challenge to the validity of labeling all mobile populations as promiscuous carriers of HIV, whilst also showing that these stylized views about migrants and sexual behavior have been created and perpetuated on the basis of insights from two narrow occupational groups that are not necessarily representative of all mobile populations. Alternative methodological approaches, which aim to encapsulate the relationship between migration and HIV in something more than a statistical test for an association between mobility status and sexual behavior, can also help to avoid any implicit anti-immigrant framing.

This review also draws attention to broader concerns within the sphere of development, such as the compatibility of developmental programmes, and the unintended consequences such programmes may have. However, an expanding current within the public health literature on structural approaches (Sumartojo 2000; Gupta et al. 2008; Evans et al. 2010; Parkhurst 2012) to HIV prevention may provide a pathway towards conceptual frameworks in which multiple goals can be pursued, potentially avoiding a trade-off between objectives. In fact, once mobility and/or migratory processes are conceptualised and understood as dynamic social processes that occur within specific

contexts, the scene is set for policy that can encompass both development and health concerns and aim for mutually-beneficial outcomes, synergies which, in the light of declining HIV/AIDS funding, may be vital (Seeley et al. 2012).

Of course there is still much to learn about exactly *how* best to link interventions working towards these goals. Interdisciplinary research in this case between economists, development practitioners, public health practitioners and epidemiologists, should be at the heart of future research and policy formulation to ensure the developmental benefits of migration and enhanced HIV-related health outcomes can be achieved together.

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[i] Migration and mobility are often used interchangeably but can refer to quite different processes. While the term 'migration' is commonly used for a change in residence of some duration, the term 'mobility' captures a wider array of both long- and short-term movement.

[ii] For a detailed account of the establishment of the migrant labour system in South Africa, see Crush et al (2005) and Hargrove, J. (2008). "Migration, mines and mores: the HIV epidemic in southern Africa." South African Journal of Science **104**(1/2): 53-61.(2008).

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